



ANTIFUNGICAL DEVICE TO CONTROL STORED CEREALS

DESCRIPTION OF THE TECHNOLOGY

When cereals come from the field they are stored in silos of different sizes. Depending on the humidity and temperature inside the storage place, these products can be contaminated to a different degree with fungi. They use the cereals as a substrate to produce mycotoxins, which are considered one of the most toxicologically potent natural compounds with the greatest impact on consumer health.

In addition, it has a great economic repercussion because the stage of grain storage is where the greatest losses are caused by problems relating to conservation conditions and are the fungi that cause most of the problems by heating, compaction and deterioration of grains.

The strategies commonly used in the silage industry for the reduction of toxigenic fungi are mainly physical and biological in nature, such as the control of grain moisture and temperature, only feasible in small-scale silos; the use of inoculants that significantly improves fungal control, but significantly alters the nutritional characteristics of treated products, the use of insecticide/anti-fungal molecules based on synthetic substances or synthetic additives that are normally used to

increase the shelf life of foods.

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Researchers at the University of Valencia have developed an invention that solves the problems described in the state of the art by means of an antifungal device capable of reducing the growth of mycotoxin-producing fungi in cereal grains during their storage and/or transport. This novel technology is based on the use of a bioactive gel in which an extremely active volatile natural molecule is found as an antifungal. As it is a completely natural bioactive compound, the organoleptic characteristics of the food are not altered and the nutritional characteristics of the treated product remain unchanged, without producing any toxicological problems, as well as being compatible with the environment and easy to apply.

MARKET APPLICATION SECTORS

The developed technology has been validated for its application in increasing the shelf life of cereals in storage. It could be applied to the majority of package products such as cereals, fresh or semi-cured cheese, industrial sliced bread, pastry products, dried fruits, prepared doughs, fresh-cut fruit or industrial charcuterie such as cooked ham, serrano ham, mortadella, sausage, chorizo, etc.

TECHNICAL ADVANTAGES AND BUSINESS BENEFITS

The main advantages and benefits provided by the invention are:

- It reduces the growth of producing mycotoxin fungi in cereal grains during storage and/or transport.
- It reduces consumer exposure to synthetic additives, and consequently reduce the impact on health, using a completely clean technology, at the same cost.
- It improves results compared to synthetic additives.

CURRENT STATE OF DEVELOPMENT

The technology has been validated at laboratory level, at small (120 kg) and large scale (50t) of storage of maize, wheat and barley.

INTELLECTUAL PROPERTY RIGHTS

The technology is protected through the following granted Spanish Utility Model ES201830993, entitled "Dispositivo antifúngico".



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COLABORATION SOUGHT

- License agreement.
- R & D project to complete development or application to other sectors
- Subcontracting agreement with another company

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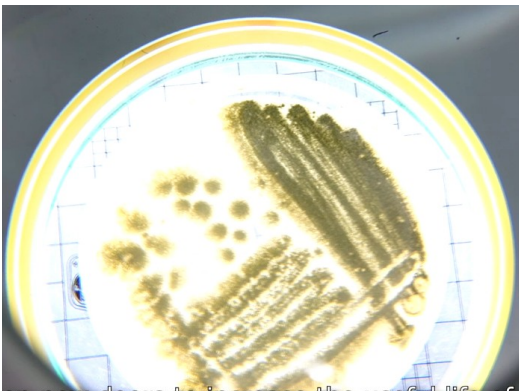


Figure 1: Petri dish with fungi cultures that grow on cereals.

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